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2013

document version

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citation for published version (APA)

Nijkamp, P. (2013). *Migration impact assessment: A review of evidence-based findings*. (Research Memorandum; No. 2013-19). Faculty of Economics and Business Administration.

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Migration impact assessment: A review of evidence-based findings

Research Memorandum 2013-19

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Migration Impact Assessment: A Review of Evidence-Based Findings

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Abstract

This paper aims to introduce Migration Impact Assessment (MIA) as a new methodological tool to estimate the socio-economic impacts of migrants on local, regional or national economies. Two approaches are presented here, viz. empirical macro studies and meta-analytical studies. The overall results suggest a modestly positive impact of migration on the economies of host countries or regions.

1. People on the Move

Migration is in an open world a ‘natural’ phenomenon. It is, therefore, plausible that we enter nowadays a new ‘age of migration’, with a great variety of migration phenomena. Forced migration (e.g., refugees) calls for humanitarian aid, while voluntary migration (e.g., guest workers, pensionado’s) prompts a different socio-economic challenge. The size of current mass immigration flows into urban areas has become a source of public and policy concern and has led to heated debates on actual or expected impacts of large diverse flows of foreign migrants on the socio-economic constellation of modern cities. A balanced societal debate on migration impacts needs a rational and evidence-based foundation in order to trace, monitor and assess the broader economic and societal impacts of immigration on the host country, region or city.

Europe is one of the world regions that has turned into an immigration region over the past decades. Clearly, the migration flows are quite diverse in terms of motives (labour, family, asylum, illegal, education, retirement etc.) and in terms of characteristics (nationality/ethnicity, education/skills, gender, age, profession etc.). This variety in migrants leads to a great cultural diversity, mainly in urban agglomerations. These far-reaching impacts of rising volumes of foreign migrants call for a systematic and broad-based migration impact assessment system, in which over a long and relevant time period – at least one generation – all relevant socio-economic impacts are estimated. The main aim is not to monetize the economic value of migrants, but to provide an assessment of the socio-economic importance of migration for society, either nationally or locally.

Immigration is usually accompanied by cultural diversity, sometimes also coined multiculturalism. This new phenomenon in Europe has prompted many debates on the advantages and disadvantages of cultural diversity as a consequence of international migration. An avalanche of studies has been published in the past decades on the implications of cultural diversity. The empirical literature lists a long collection of diversity effects, not only on the labour market, but also on many other domains of society. Clearly, there may be – next to positive effects – also negative effects (such as crowding-out effects, ghetto effects or safety effects). It is again an important question whether the overall balance of cultural diversity tends to be negative or positive, especially in those areas which attract highly-skilled migrants. It is increasingly recognized that also the long-run effects (e.g., in relation to innovativeness, creativity, cultural enrichment, and international orientation) need due attention.

An assessment of the socio-economic consequences of foreign migrants at national or regional level has taken place in many countries. These countries may have significant differences in migration policy history, economic development and local circumstances. The present study presents general findings from various empirical studies on migration impacts. They also address the popular assumption that migrant inflows may lead to high crowding-out losses for natives on the labour market (and subsequent wage formation). The findings from

these selected case studies prompt a more general question, viz. whether it is possible to summarize all applied quantitative impact modelling studies undertaken so far by means of a meta-analysis, so that a more generally valid proposition on migration impacts can be put forward. Various meta-analytic studies have indeed demonstrated that the fear that generally a large influx of migrants might have a devastating effect on local or regional labour markets of the host country is not confirmed by empirical facts. We will concisely summarize the results of various meta-analyses in order to trace whether there are crowding-out and competition effects on local labour markets, and whether such phenomena take place among distinct classes of migrants rather than between migrants and natives. We will also analyze whether income effects of migration tend to be negative or positive.

In the light of the above observations this paper is organized as follows. Section 2 will offer an exposition on the principles of Migration Impact Assessment (MIA). Next, Section 3 will be devoted to an overview of various country studies on MIA, while Section 4 will briefly summarize the findings from meta-analytic MIA studies. The paper will be concluded with some policy lessons.

2. Migration Impact Assessment

Can we assess the socio-economic effects of large flows of immigrants? At the outset it should be clear that migrants exhibit an excessive diversity in terms of demography, geography, culture, language, education, motivation, age and gender. A number of factors, e.g., former colonial links, previous areas of labour recruitment, and ease of entry from neighbouring countries, is responsible for the pluriform trends in migration in the past decades (Stalker 2002). The diverse migrant flows can be classified into four broad categories of entry: labour migration, family reunification, undocumented workers or illegal immigrants, and asylum seekers. In recent years we observe also an increasing importance of educational migrants (e.g., researchers, students) and ‘pensionado’s in Europe. Broadly speaking, since the end of World War II, Europe has had four main phases of immigration (Stalker 2002; Zimmermann 2005):

- *Late 1940s and early-1950s – post-war adjustment, mass refugee flows and decolonisation:* dramatic population shifts of around 15 million people who were forced to transfer from one country to another in order to relocate as a result of boundary changes, particularly between Germany, Poland, and the former Czechoslovakia. Over the same period, Great Britain, France, Belgium and the Netherlands were also affected by return migration and the inflow of employees from colonies.
- *Early-1950s to 1973 – labour migration:* the economic reconstruction of Europe and the average economic growth rate around 5 per cent per year created a huge demand for workers. Germany, Austria, Belgium, the Netherlands, Switzerland, Denmark and Sweden recruited many unskilled workers from the Southern European countries. Over this period net immigration into Western Europe reached around 10 million.

- *1974 to mid-1980s – restrained migration:* the oil shock of 1973 and increased social tensions and fears about recession led governments all over Europe to close doors to further labour immigration, and the main channels of immigration became family reunification and humanitarian immigration. However, new destinations including Italy, Greece, Portugal and Spain which were becoming more attractive to immigrants by their economic stimulus of joining the European Community emerged.
- *Mid-1980s to 2000s – asylum seekers, refugees, and illegal immigrants:* the period of political upheaval, particularly in Eastern Europe during and after the collapse of communism. From 1989-1998, more than 4 million people applied for asylum in Europe. With the increasing pressure of asylum seekers and tightening policies of governments more people tried to enter illegally. According to cross-national data of the OECD and Eurostat, for Europe as a whole, the stock of illegal immigrants may vary between 2 and 3 million – accounting for 10 to 15 per cent of the total population of foreigners (IOM 2000; Stalker 2002).

These quite diverse developments have exerted far-reaching impacts on the host labour market – and broader socio-economic constellations – of receiving countries at both national and local level. West- and Central-Europe encompasses the traditionally attractive labour markets of Germany, Switzerland, Austria, the Benelux countries, UK and France, whereas the Nordic welfare states, especially Denmark and Sweden, do not seem to act as great magnets for foreign labourers at a large scale. The most important European immigration countries, e.g., Germany and the Netherlands, have been traditionally the port of entry for many labour migrants. However, since the 1980s, Southern European countries like Italy, Greece, Spain and Portugal have also become important immigration countries, receiving people from Northern Africa, the Balkans, and the Eastern Mediterranean, mostly through illegal immigration due to the proximity to these regions, the geography with long coastlines, numerous islands and mountainous regions at the borders which are easier to enter, and the geographic position as transit countries for people heading further north (Cavounidis 2002; IOM 2000; Lazaridis and Poyago-Theotoky 1999; Stalker 2002; Zimmermann 2005). A systematic monitoring at an EU level of such flows and their impacts is lacking.

The available data from OECD and Eurostat show the extent of migrant inflows during the 1990s and assigns to Germany the first place; the UK is next, though it follows a pattern with a steady overall rise; France shows a stable attractiveness over the years, whereas Italy exhibits a remarkable increase after 1998 and ranks as the third country in 1999.. However, this picture has drastically changed in the 2000s: Spain occupies the first place in 2004 with an inflow of 646 000 foreign citizens; the UK still keeps its second rank and Germany is ranked as the third country. France continues to show its stable attractiveness at the fourth place, whereas the inflow to Italy has decreased in later years and Italy is ranked as the fifth country (OECD 2006).

Another important trend in recent years is that migration flows have become more diverse, from both a geographic and a socio-cultural perspective. Although the main destination countries continue to receive the bulk of their immigrants from traditional geographic origins, they are increasingly also seeing people arrive from a broader array of countries. Migration has become a global phenomenon. As mentioned above, migration offers a surprisingly diverse panorama of ‘people on the move’ (Nijkamp 2009). Apart from the various stages in migration patterns in the post-WWII period, we observe an increasing diversity in migration flows which makes it very hard to quantify the socio-economic effects of immigration.

A first and main distinction has to be made between voluntary and forced migration. Forced migration is mainly the result of political or religious suppression, natural disasters, famine and so forth. Host countries usually receive forced migrants on humanitarian grounds, and do normally not call for a socio-economic assessment of the costs and benefits of the inflow of forced migrants (often classified as refugees or asylum seekers). Clearly, a large inflow of forced migrants into a given area may exceed the physical absorption capacity of that area (e.g., housing, jobs, socio-medical and educational services) and hence lead to excessively high social costs, so that then one may have to seek for geographic substitution or coordination to reduce the ad hoc burden of excessive migration.

Voluntary migration is a different category and comprises both economic opportunity seekers and socially motivated migrants. Examples of the first category are guest workers and temporary job seekers (sometimes even seasonal) and business migrants. The class of socially motivated migrants refers inter alia to family re-unification, retirement migration (‘pensionado’s’), and training and education (e.g., students). All these migrant categories have different motives and ambitions, and hence their socio-economic impact on a host area differs according to their migration motives. Consequently, a standard uniform migration impact assessment that covers all population groups is hard to undertake (see also Fritschi and Jann 2007; Roodenburg et al. 2003). Several attempts have been made to develop a financial balance-sheet for immigrants, often with an emphasis on costs (see, e.g., Rubenstein 2008), but such analyses tend to be short-sighted, as they neglect the future revenues which tend to compensate for initial entry costs.

Nevertheless, from an economic perspective, it seems reasonable to make an estimate of the socio-economic (dis)advantages of significant migration inflows. This belongs to rational policy analysis, in which a systematic impact assessment of major changes is a *conditio sine qua non*. The costs and benefits inherent in such trend changes in society are usually estimated by social cost-benefit estimations. This holds for large infrastructural investment plans (e.g., airports, harbours, road networks, Olympic games), for large-scale institutional adjustments (e.g. re-organizations in public service deliveries), for policy initiatives regarding specific branches of the economy (e.g., tourists, road users, farmers), for policy plans on specific segments of society

(e.g., elderly care, childhood care, unemployment projects) or for general large-scale external developments affecting a country (e.g., climate change, sea level rise).

It should be noted that a social cost-benefit analysis is, in principle, different from a financial (cash flow or fiscal) analysis that aims to estimate the direct financial expenditures and revenues of a certain phenomenon or policy intervention. Such a financial assessment is a monetary calculation scheme that is based on direct profitability and efficiency conditions. A social cost-benefit analysis, however, is a strategic assessment of all short- and long-term sacrifices and benefits that directly and indirectly accrue to society as a result of the implementation or occurrence of a major public intervention, initiative or external phenomenon. A social cost-benefit analysis does not value the financial significance of individuals or groups, but the economic meaning of major events for society. Consequently, in a migration context, a cost-benefit analysis does not estimate the advantages and disadvantages of individual immigrants, but it maps out the socio-economic pros and cons that may be expected by society as a result of a major migration influx. The pros and cons normally take a few decades – or even more – to fully materialize. It is evident that many costs (e.g., for education) are to be seen as investments for the future. Any calculation of costs and benefits needs to take account of the time trajectory of the flows of costs and benefits. Like in most investment plans, the initial stages are characterized by high entrance costs (directly and indirectly), while at later stages the flows of benefits start to accrue. It is a well-known practice in economic cost-benefit calculations of public projects to assume a time period of 20 to 30 years. A lower time horizon would lead to an overestimation of the costs and an underestimation of social revenues and would make a cost-benefit analysis futile. To position migration impacts in a broader strategic context of societal benefits, it is useful to deploy a SWOT analysis, in which past, current and future effects are assessed from a broad perspective.

It should be added here that in the literature there is sometimes a vague distinction between the (dis)advantages of cultural diversity in society – which refers to the effects of societal integration of various distinct ethnic groups – and the (dis)advantages of immigration – which refers mainly to the labour market effects (see, e.g., CCSCE 2005). These two categories are not necessarily the same (though largely overlapping). In our study we will mainly address the socio-economic impacts of immigrants. As a start, we will offer a concise overview of a selection of empirical case studies on different countries.

3. Empirical Country Studies on Migration Impact Assessment

Many migrant receiving countries have regarded foreign immigration as a source of economic progress and socio-cultural wealth. Canada, New Zealand and Israel are prominent examples of countries which have used a positive immigration policy as a vehicle for welfare enhancement. Other countries have been more neutral or sometimes even reluctant to welcome large migration flows, mainly because of the assumed negative externalities involved. In this

section we will summarize a set of selected studies from different countries. This non-exhaustive overview serves three purposes: (i) to demonstrate that MIA is a frequently used analytical and rational tool to estimate the advantages and disadvantages of immigration; (ii) to show the variety in MIAs in different countries (there is no uniform panacea); (iii) to illustrate the complexity in assessing the pros and cons of immigration.

3.1 *New Zealand*

A study by Strutt et al. (2008) reviews the international and New Zealand literature on the interaction between enhancing cross-border trade and investment, through negotiations and agreements, and international migration. There is a two-way interaction: increased trade will affect migration and increased migration will affect trade. Both directions of this two-way interaction are reviewed in this study. The report also briefly reviews the benefits and costs of migration to the extent these might feature in trade and migration negotiations. This study also reviews World Trade Organisation (WTO) agreements and regional agreements relevant to New Zealand. In the WTO framework for trade negotiations, only mode 4 of the General Agreement for Trade in Services (GATS) is directly concerned with the cross-border movement of people to carry out services abroad. Within the GATS, this is referred to as the ‘movement of natural persons’. This is defined as temporary movement only, in which temporary is not further specified.

Trade liberalisation of the service sector could offer even more significant gains than liberalisation of international goods trade. Trade in services cannot prosper if the movement of people is not promoted. The main barriers to trade in services under mode 4 of GATS are: immigration policy and social security issues; potential discriminatory treatment of foreign providers of services; and inadequate recognition of qualifications.

There is broad agreement in the literature that the wording of GATS, especially mode 4, is rather vague. Although mode 4 is potentially ambitious, relatively few commitments to open markets have been made. The actual temporary migration policies of countries tend to be more open than their potential GATS commitments. This is apparently the case in New Zealand. While the international movement of ‘natural persons’ for the provision of services abroad is likely to increase in the future, this will take place irrespective of whether such movement is negotiated under GATS mode 4 or not. Developing countries may seek access to New Zealand’s labour market as a condition for opening their own markets to goods trade and professional services supplied by New Zealanders. Such negotiations are more likely on a bilateral than multilateral basis.

Countries such as New Zealand already impose few barriers on the short-term movement of business people. The establishment of ‘offshoots’ of foreign services providers under GATS mode 3 is likely to trigger an associated need for temporary migration of intra-corporate

transferees. Again, existing arrangements already accommodate such movement, so that GATS mode 4 is not essential to negotiation in this context.

Immigrants foster international trade through their demand for home country outputs and through their ability to facilitate trade between the host and home countries. Migrant networks are important in this context. The impact of immigration on exports is less than the impact on imports. Migration also stimulates the export of tourism services. In addition, tourism growth is often seasonal and leads to a greater demand for temporary migrant workers.

While sending and receiving countries benefit in aggregate, there will be a redistribution of income that will make some people better off and others worse off. The distributional impact of immigration may be much larger than its net aggregate impact. This explains why it is very difficult to reach a political consensus on immigration. Nonetheless, a meta-analysis shows that any adverse impacts of immigration on wages and employment of the host population are likely to be very small.

From a policy perspective, the linkages between migration, foreign investment and trade cannot be fully addressed within a purely economic framework. The report highlights also the paradox of diversity. Economic benefits of opening up borders to trade or immigration are at their largest, the more different the countries are. In addition, greater labour mobility helps to facilitate trade and increases the cross-border demand for domestic output. The nurturing of cultural diversity may further enhance trade. However, social cohesion and the accumulation of social capital are not natural outcomes in increasingly diverse societies, but require resources to be allocated to the promotion of desirable social outcomes. Thus, the social evaluation of greater cross-border mobility resulting from greater international economic integration must go hand in hand with the economic assessment.

3.2 *Australia*

A study commissioned by the Department of Immigration and Multicultural Affairs (DIMA) 2006 contains a position paper (PCPP) by the Australian Productivity Commission. In this report the Commission examined the effects of an increase in the level of the skilled migration intake of 50 per cent, which translates to an extra 38,940 skilled migrants per year. The effects of this policy of higher skilled migration were estimated in a two-step process. In the first step, the Commission estimated the effects of higher skilled migration on the supply of labour, using its own models known as the Labour Supply Projection Model (LSP) and the New Arrival Tracker (NAT). In the second step, the Centre of Policy Studies (CoPS) fed these labour supply effects into the well-known, economy-wide MONASH Model to obtain estimates of the resulting broad economic impacts.

While a larger population leads to a larger economy, the main issue is whether this expansion is accompanied by higher living standards. According to the PCPP, living standards, as measured by Gross National Product (GNP) per capita, are lower than would otherwise be the

case for the first 12 years of the policy, but are then higher. After 20 years, the gain in GNP per capita reaches 0.6 per cent.

For this current report, the DIMA commissioned Econtech to compare the results of its own modelling of the economic impacts of the extra skilled migration intake with the results from the PCPP. For this purpose, Econtech conducted the same simulation of an increase in skilled migration of 50 per cent using its own Migration Modelling Framework. This is a long-established, integrated modelling system for estimating the demographic and economic impacts of migration. The development of this system started in 1991 when the former Bureau of Immigration Research commissioned Econtech to construct a demographic model (MM2-Demographic) and link it with its economy-wide Murphy Model (MM). The purpose of this modelling system was to analyse the economic effects of alternative migration policies. Updated versions of this modelling system, which now uses Murphy Model 2 (MM2), have been used by Econtech in a series of studies for the DIMA over the years.

The economic effects obtained using the Migration Modelling Framework are materially more favourable than those found in the PCPP. In particular, the initial drop in living standards is more mild and less protracted, and after 20 years the gain in living standards reaches 1.1 per cent, compared with the PCPP estimate of 0.6 per cent. This is a material difference for assessing the economic merits of the skilled migration program. Like the PCPP Modelling Framework, Econtech's Migration Modelling Framework finds a minimal impact of skilled migration on the unemployment rate, although for a different reason.

3.3 *Europe*

A study by Münz et al. (2006) views migration movements from the viewpoint of creating an integrated Europe. The aim is to develop a better understanding of how the EU and its member states may use availability and skills of today's and future immigrant populations in order to cope with economic and demographic challenges. This study comes up with the following findings and conclusions.

Immigration has a positive influence on population and labour force growth. If natural population growth turns negative, immigration can help maintain total population and the labour force constant. Immigration could also be a remedy to shortages of labour and skills that are unrelated to demographic processes. However, immigration is not a solution for tackling the consequences of demographic ageing in Europe. The level of net migration required to keep the old-age dependency ratio constant would entail increases of inflows well beyond socially desirable and politically sustainable levels.

Empirical evidence shows that the impact on wages and employment is on average negative, but very small. This suggests, that the potential downward effect is offset by additional creation of employment due to economies of scale and spillovers (which increase productivity)

as well as higher demand for goods and services (due to population growth through immigration).

Compared to the US, the immigration impact on wages and employment was found to be more negative in EU countries. However, this negative effect is not evenly distributed among EU Member States. In Greece, Italy, Spain and the UK it turned out to be negligible or slightly positive. Immigrants apparently acted as complements to native workers and competition causing downward pressure on wages and job displacement hardly arose. For example, high-skilled immigrants filled in vacancies that went unmet by the native labour supply and thus increased productivity, while low-skilled migrants took jobs avoided by natives (e.g. dirty, difficult and dangerous jobs, low paid household and other service jobs) and jobs in sectors that are traditionally affected by strong seasonal fluctuations (e.g. farming, construction, and tourism).

Negative effects are observed in the case of Belgium, where new immigrants competed with immigrants who had come during earlier periods for available low-skilled jobs, resulting in high unemployment rates among certain foreign-born groups (in particular immigrants from Congo, Morocco and Turkey). In Germany, due to the rigidity of the labour market and the comparatively low mobility of German workers, the labour market effects of immigration were found to be negative as well, in particular in the construction sector. This illustrates, that market regulations that have the scope to protect native workers often have an unintended consequence. In the long run they tend aggravating the negative impact of immigration on the labour market situation of the natives. With respect to labour market efficiency, empirical evidence from several EU countries shows that it could be improved by immigration. Since immigrants move to the most attractive regions, where salaries and employment opportunities are higher, their labour market integration induces a convergence effect on wages and unemployment between regions. At the same time the labour market shortages are reduced.

The implication of international migration on the welfare systems of EU Member States is diverse. Empirical evidence illustrates that the impact is strongly dependent upon the original ‘gate of entry’ or way of admission, the labour market access and – as a result of the former – the socio-economic characteristics (labour market performance) of the immigrants. Countries with high share of economic migration – implying that immigrants have a speedier access to work (e.g. UK, Italy, Greece, Portugal and Spain) – experienced a positive contribution of immigrants to the treasury. In countries where immigration flows were dominated by asylumseekers (who are permitted to work under restrictive conditions) and families reuniting (e.g. Denmark, Sweden), immigrants were more dependent on welfare payments than natives. The same occurred in countries where immigrants had a low labour market performance (partly due to discrimination and inappropriate access to schooling and training; e.g. The Netherlands). Germany partly also falls into this category because of the large-scale admission of ethnic Germans and their dependent family members who are characterized by high unemployment and high take-up rates of state pensions. The lowest labour force participation registered in the EU-

15 in 2003 was that of immigrant women of Turkish and North African nationality, illustrating that migrant women (in particular Muslim women) are more likely than men to remain outside the labour market, which makes it even more difficult for them to integrate into the receiving society.

The influence of immigration on growth was found to be positive in the case of immigrants endowed with financial or human capital. Immigrants that provide financial capital have a positive effect on consumption and investments and high-skilled professionals are complementary to investment flows in the sectors they are employed in and thus attract more investments. Only the low-skilled migrants were estimated to reduce labour productivity in sectors that are employing them. However, low-skilled migrants are mostly taking jobs avoided by natives and in sectors with seasonal labour shortages (e.g. farming, road repairs and construction, tourism-related services). In particular in Southern European countries, which have market shortages for low-skilled labour, they not only helped these sectors to survive, but also contributed to their development.

Similar to the case of welfare systems, the impact of immigration on growth strongly depends on the labour market performance of the migrants. Several European countries experienced high skilled migrants being employed in low skilled jobs. This so called brain waste generates resource costs and alerts the questions about recognition of diplomas, assimilation and integration in the migrant receiving economy. Labour market integration often does not occur due to a combination of rigid labour markets, the reciprocal link between low labour market status and relatively poor school performance, and to some extent also because of labour market discrimination against non-European immigrants. Discrimination not only hinders labour market performance of immigrants, but by decreasing returns to human capital lowers their incentive to invest in host-country-specific human capital, which in turn causes poorer labour market performance.

3.4 *EU Enlargement*

A study by Barrell et al. (2009) considers the macroeconomic effects of the migration that followed the enlargement of the EU in May 2004. At that time the EU was expanded to include 10 New Member States (NMS) predominantly from Central and Eastern Europe. In the wake of accession the number of workers migrating to the EU-15 from the poorest of the NMS increased significantly. In part the result of the liberal immigration policies adopted, and restrictive policies adopted elsewhere, Ireland and the UK have become popular destination countries for NMS workers. This report describes the potential scale of migration effects on GDP, inflation, unemployment, productivity, the current account balance, and GDP per capita allowing for different assumptions about the labour market characteristics of immigrants versus natives and of emigrants who return to their home country versus the rest of the home country population. We consider how the macroeconomic effects of migration depend on the structure of the sending and

receiving economies, but also the skill composition and the nature of migration, in particular whether it is temporary or permanent. The statistical tool for analysis is the National Institute Global Econometric Model (NiGEM), which includes fully specified country models for most European countries. The overall results related to various macro-economic indicators for 8 NMS countries and 7 existing EU members show that the 7 EU countries largely benefit, whereas the 8 NMS countries show a loss.

3.5 UK

A report by IPPR (2007) describes the economic characteristics and contributions of immigrants. It is an attempt to piece together some of the dimensions that may be seen as good reflectors of socio-economic profile. It should not be seen as *the* definitive picture of *all* the economic characteristics of immigrant communities. It draws on one set of indicators to act as proxies for measuring these dimensions.

The overall findings show that there is considerable variation between the economic characteristics of immigrant groups in the UK; their heterogeneity makes any discussion of the average or overall impact of immigration highly problematic. But on the basis of relatively simple rankings, the conclusion can be drawn that on most criteria, most immigrant groups perform better in economic terms than the UK-born population. When the relative size of the groups concerned is taken into account, the average immigrant has better economic characteristics than the average UK-born person. However, there are some immigrant communities which rank consistently lower on most indicators than the UK average. In some cases, these relatively low-ranking communities are predominantly made up of people who have come to the UK for non-economic reasons (for example, to join family members who are already in the UK, or to seek asylum). In other words, these communities may be made up of large numbers of people whose admission into the UK is not based on their potential economic contribution to the UK.

It should be added that in a follow-up study by the IPPR (2009) some more specific estimates have been made on the labour market impacts of immigration in the UK. This new study addresses in particular the question whether immigration reduces wages or employment for the UK-born population. This argument has become particularly prominent since the arrival of large numbers of migrants from Central and Eastern Europe since 2004. It seems plausible that the influx of migrants from the new accession countries of the EU since 2004 would mean more marked impacts on employment and wages, at least in the short term (until the labour market adjusts). But a regression analysis carried out on the impact of migration on wages since 2001 suggests that the overall effects of migration on wages are rather small. The regression model used in this study suggests that a 1 percentage point increase in the share of migrants in the UK working-age population (for example, from 10 per cent to 11 per cent of the population) would reduce wages by around 0.3 per cent. Even these small effects may be transitory. In short,

empirical evidence suggests that migration is of very little concern from a labour market perspective. There is no evidence to suggest that migration has any substantial negative impact on either wages or employment. Indeed, it is entirely possible that there is a small positive impact on either or both of these, or no impact at all. It is, however, important to note that there may be more significant effects in some local areas, or for some groups of workers, particularly in the short term.¹

Finally, it should be noted that the previous empirical positive findings on the socio-economic impacts of immigration in the UK have been questioned by a report from the British House of Lords (2008). In their policy document, the House of Lords claims that there is no evidence for the argument that net immigration – immigration minus emigration – generates significant economic benefits for the existing UK population. In their view, overall GDP is an irrelevant and misleading criterion for assessing the economic impacts of immigration on the UK. The total size of an economy is not an index of prosperity. The focus of analysis should rather be on the effects of immigration on income per head of the resident population. Both theory and the available empirical evidence indicate that these effects are small, especially in the long run when the economy fully adjusts to the increased supply of labour. In the long run, the main economic effect of immigration is to enlarge the economy, with relatively small costs and benefits for the incomes of the resident population.

The overall inclusion may be drawn that the economic impacts of immigration depend critically on the skills of immigrants. Different types of immigrant can have very different impacts on the economy. The issue is not whether immigration is needed, but what level and type of immigration is desirable. In this context, net immigration from the EU into the UK cannot be controlled. The question then is whether additional immigration from elsewhere carries benefits or disadvantages.

3.6 *A8 Migrants in the UK*

A study by Dustmann et al. (2009) addresses the fiscal consequences of migration to the UK from the Central and Eastern European countries that joined the EU in May 2004 (the so-called A8 countries). It shows that A8 immigrants who arrived after EU enlargement in 2004, and who have at least one year of residence – and are therefore legally eligible to claim benefits – are 60% less likely than natives to receive state benefits or tax credits, and 58% less likely to live in social housing. Even if A8 immigrants had the same demographic characteristics of natives, they would still be 13% less likely to receive benefits and 28% less likely to live in social housing. The study compares the net fiscal contribution of A8 immigrants with that of individuals born in the UK, and find that in each fiscal year since enlargement in 2004, A8 immigrants made a positive contribution to public finance despite the fact that the UK has been

¹ In Section 4 of our paper, we will offer empirical results from a meta-analysis applied to various applied studies on labour market impacts of immigration.

running a budget deficit over the last years. This is because they have a higher labour force participation rate, pay proportionately more in indirect taxes, and make much lower use of benefits and public services. This study contains many statistical data that support the above statement. The findings from this study suggest that A8 immigrants are highly educated; around 35% (and 17% of natives) left full time education at or after the age of 21, and only 11% (53% of natives) left school before the age of 17. Despite this, A8 immigrants receive low wages, in particular immediately after entry to the UK. However, every entry cohort to date has experienced a remarkable increase in wages since arrival. A8 immigrants are also more likely to participate in the labour market, and have higher employment rates than natives, on average. Again, each entry cohort increases their employment rates substantially after arrival, with much higher employment rates after about 4 years.

All this paints a positive picture of A8 immigration to the UK, one of highly educated, young people, entering into the UK predominantly to work with subsequent positive contributions to the tax system. The analysis also suggests that the labour market situation of immigrants substantially improves with time in the UK, in terms of both wages and labour force attachment.

It should be added that the findings from Dustmann et al. (2009) are largely consistent with previous findings on labour market implications by Lemos and Porter (2008), who conclude that A8 migration has had no adverse impact on the labour market outcomes of natives. The conclusion is that as yet there is no empirical evidence of significant adverse effects on native labour market outcomes.

3.7 *Nordic Countries*

In a study on Nordic countries, Pekkala Kerr and Kerr (2008) present recent findings on economic impacts of immigration for host countries, with particular emphasis on Northern European experiences. Immigration levels and flows for some Northern European countries have a relative strength on par with traditional destination countries like the US. These significant economic magnitudes, combined with Europeans ageing population, make immigration a first-order policy question and research concern. Empirical lessons in their study are drawn from various sources.

First, the evaluation of immigrants' success in host-country labor markets are often based on comparisons of immigrant and native wages and employment at the time of entry and over the duration of the stay. While the US literature has concentrated on wages, most European studies analyze employment assimilation. Typically, immigrants are found to experience lower employment and wages than natives at entry. Even though these differences are likely to diminish over the duration of a migrant's stay, recent cohorts are expected to experience permanently weaker labor market success. This is particularly clear in European countries. A related issue is the use of social benefits by immigrants. As immigrants are more often outside of

the labor force or unemployed, it is often assumed that they spend more time on welfare and use other forms of social assistance compared to the natives. This assumption is not uniformly confirmed by the literature, however. The findings on immigrants' use of social benefits vary widely across countries, as does the degree of assimilation into or out of the host country's welfare system.

The general view on immigration overstates the adverse effects of immigration on natives of the host country. Within the large empirical literature looking at the effects of immigration on native employment and wages, most studies find only minor displacement effects even after very large immigrant flows. On the other hand, the lack of evidence has been argued to result from poor methods and insufficient data. Some more recent studies have found larger effects, and many studies note that the effects only accrued to certain parts of the native population. The parts of the population most typically affected are the less-educated natives or the earlier immigrant cohorts - that is, those who are the closest substitutes to the new immigrant flow currently experienced by Europe.

Immigration is also generally viewed as a large fiscal burden for European public sectors. There certainly exist large differences across migrant groups in the costs and benefits they cause for a host country; the net impact depends heavily on the migrant's age, education, and the permanency of the stay. On average though, immigrants appear to have a minor positive net fiscal effect for host countries. Of course, these benefits are not uniformly distributed across the native population and sectors of the economy.

3.8 Germany

In a study by Suedekum et al. (2008), the authors claim that marked changes in the composition of the non-native workforce in the German labour market can be observed. Firstly, there has been a notable increase in the group of high-skilled and a decline in the group of non-university trained foreign workers. Secondly, the diversity of the nationalities of which the foreign workforce is composed has risen considerably.

Little attention has been devoted to the labour market effects of the diversity of the foreign workforce for the native workers, however, despite the fact that the increase in heterogeneity is an important empirical fact. The study by Suedekum et al. (2008) uses a panel of 326 German regions over the time period 1995-2002 and analyzes the wage and employment effects associated with cultural diversity of the foreign workforce at the local level. The study conditions the estimates on the total regional shares of foreign workers, in order to disentangle the effects of the fractionalization into different nationalities from pure size effects of the foreign workforce. The regional perspective adopted not only allows to exploit the huge degree of intra-national variation of wage, employment and foreign participation levels in the data. It is also useful because the theoretical arguments why cultural diversity might affect labour market outcomes of natives rest on the logic of small, local labour markets.

Diversity may affect labour markets through different channels, and the net impact could be positive or negative. Firstly, workers with different cultural backgrounds embody complementary skills and problem-solving abilities. When these workers interact, productivity may rise due to knowledge spillovers or other forms of externalities. On the other hand, when the variety of the national backgrounds becomes too diverse, fractionalization may also imply excessive transaction costs for communication and, in fact, lower productivity. Secondly, the effects of diversity may also operate through a different channel, namely by affecting the quality of life in different locations. A tolerant native population may value a multicultural atmosphere as an attractive feature of a city, for example, because of a more diverse supply of ethnic goods. Yet, diversity may also be perceived as an unattractive feature, e.g., if natives fear that social conflicts between different foreign nationalities are imported into their own neighbourhood. Clearly, all of the aforementioned mechanisms are far more likely to be relevant and visible on a local than on a national level.

The study results find that positive labour market effects of cultural diversity do in fact exist in Germany, particularly when considering skilled foreign workers. Both their total share and their diversification raise local productivity. For the share of unskilled foreign workers we find negative wage and employment effects, which implies a negative effect on regional productivity. However, for a given share of unskilled foreign workers, we still find positive effects if this group is diversified. Hence, the most adverse labour market effects are to be expected if a region hosts a large and culturally homogeneous group of unskilled foreign workers.

There are thus positive effects of cultural diversity for the native German employees at the local level. When considering the effects of skilled foreign workers, the authors find that both their total share and their diversification into different national groups raise local wage and employment levels for natives. This implies a positive effect on regional productivity. For the share of unskilled foreign workers, the authors find negative wage and employment effects, which implies a negative effect on regional productivity.

In another recent, but different study on Germany (Malchow-Møller et al. 2009), the authors focus on the short-run adjustments taking place at the workplace level when immigrants are employed. Specifically, they analyse whether individual native workers are replaced or displaced by the employment of immigrants within the same narrowly defined occupations at the workplace. For this purpose, they estimate a competing risks duration model for job spells of native workers that distinguishes between job-to-job and job-to-unemployment transitions. In general, they do not find any signs of native workers being displaced by immigrants. Furthermore, they find only very limited signs of replacement of native workers by immigrants. Instead, in particular low-skilled native workers are less likely to lose or leave their jobs when the firms hire immigrants.

Finally, it should be added that several more recent studies have been undertaken for Germany to estimate the costs and benefits of immigrants or segments thereof, which come to largely similar conclusions. It should be noted that of course the economic effects of immigrants are critically dependent on their willingness to be integrated in local labour markets and networks (see, for instance, Fritschi and Jann 2007, for empirical evidence on this issue).

4. Meta-Analytic Studies on the Impact of Immigration on the Host Economy

4.1 Introduction

The literature on immigration effects takes sometimes for granted that a significant inflow of migrants will lead to crowding-out effects, with negative consequences for wages, employment, income and economic growth. It should be noted that such assumed negative effects have to be interpreted in a more broad and complex (regional) economic context, in which the functioning of regional labour markets and the competitiveness and development potential of regions have to be considered simultaneously. For example, Greenwood and McDowell (1986) have argued that the influx of low paid Mexican workers in the Southern states of the USA has prompted an unexpected economic growth. Cheap labour offers a competitive advantage in an open economy, with a higher economic growth for the region concerned. If this is matched with skilled labour, such an immigration region will tend to grow faster, while the assumed negative effects on wages of the natives (or on the jobs for natives) do not take place. Clearly, all such effects depend on the composition of the labour market and the state of the regional economy, so that an unambiguous and general conclusion on individual cases cannot be drawn.

But it is a valid question to ask what the empirical literature tells us about such effects. This approach is known as meta-analysis, a statistical-econometric analysis of the empirical findings of a broad variety of applied studies on the effects of a certain phenomenon, in this case immigration (see for a broad introduction Florax et al. 2002). In the framework of recent applied modelling research on migration impact assessment, several meta-analytic studies have been undertaken. We will summarize these studies in the present section. The issues addressed here are the immigration effects on wages, on employment, on combined wages and employment, and on a package of labour market effects (viz. wages, employment, unemployment and labour force participation), respectively. This is documented in Subsections 4.2-4.5. Next, in Subsection 4.6 we will offer the findings from a very recent meta-analytic investigation into the income effects of immigration. Finally, we also present preliminary findings from a comparative study on migration and diversity impacts on innovation patterns in Europe (Subsection 4.7).

4.2 Meta-Analytic Migration Impact Assessment on Wages

Longhi et al. (2005) have presented a study which systematically summarises the empirical literature estimating the impact that immigration has on wages of natives and earlier immigrants.

It compares 348 estimates, appeared in 18 articles published from 1982 to 2003. The study analyses whether there is consensus in the literature, and suggests possible reasons for apparently inconsistent results in the empirical literature.

The 348 estimates of the impact of immigration on wages have been computed using data from 1960 to 2000. Most of these estimates refer to the US, with 235 estimates for different set of years, ranging from 1960 to 2000. The sample also includes 23 estimates for Australia and 15 estimates for Israel, all for the period 1980s-1990s. Looking at European countries, the sample includes 5 estimates of the impact of immigration in France in the 1960s; 30 estimates for Germany and 20 estimates for Austria, all for the period 1980s-1990s; 10 estimates for the Netherlands and 10 estimates for Norway, all for the 1990s.

The study is based on a so-called meta-analytic regression model, which systematically summarises the results of the previous literature using statistical techniques, and aims at identifying sources of variation in empirical estimates that are broadly comparable. Essentially, this study computes regressions in which the dependent variable is the estimate of the impact of immigration on wages (published in the literature), and the explanatory variables are dummies that summarise the main characteristics of the regressions that produced those estimates (the dependent variable).

Although the range of estimates is very wide, ranging in this sample from -5.35% to +4.46%, there seems to be consensus in the literature that the impact of immigration on wages is small. The unconditional average of the 348 estimates is only -0.1, suggesting that a one percentage point increase in the share of immigrants in the population would lower wages of the native-born population by about 0.1 percent.

The meta-analysis suggests that the impact of immigration on wages is larger in magnitude when estimated for European countries rather than for the US, and that estimates that are computed using geographically narrower definitions of the labour market tend to find much smaller impacts of immigration. This is related to adjustment processes such as native out-migration, changes in sectoral and trade composition, and capital inflow which in an open/small labour market might bias the estimation of the effect of immigration towards zero in the long run. On the other hand, the short-run effects of migration are likely to be markedly local: immigrants are likely to have initially a sizable impact only in the labour market area where they choose to locate. The fact that such local impact remains small even in the short run is likely due to the supply shock coinciding with an immediate increase in local consumption expenditure associated with the enlarged population, and associated multiplier effects.

Immigrants tend to have the same impact on wages of men and women, but seem to have a much larger impact on wages of other (earlier) immigrants rather than on natives. This suggests a low degree of substitutability between natives and immigrants, which might be one reason why the literature has failed to find a large negative labour market impact of immigration.

Evidence from the previous literature suggests that immigration has only a marginally negative impact on wages. The average decrease in wages is expected to be unequally distributed between natives and earlier immigrants; natives being the least affected group.

4.3 *Meta-Analytic Migration Impact Assessment on Natives' Employment*

In two studies, Longhi et al. (2005, 2008) have systematically summarised 165 estimates of the impact of immigration on employment, appeared in 9 articles published from 1997 to 2005. The study analyses whether there is consensus in the literature, and suggests possible reasons for apparently inconsistent results.

Only 48 of the 165 estimates have been computed for the US; the majority have been computed for European countries. In particular, 20 estimates refer to Germany; 8 to Austria; 33 to Spain; 6 to the UK; while 48 refer to the EU as a whole. The remaining 2 estimates are for Israel.

The study is again a meta-analysis, which offers a statistical summary of results of the previous literature. This study computes regressions in which the dependent variable is the estimate of the impact of immigration on employment (published in the literature), and the explanatory variables are dummies that summarise the main characteristics of the regressions that produced that estimate.

The unweighted average of the 165 estimates of the impact of immigration on employment leads to an average elasticity of -0.02 : a 1 percent increase in the number of immigrants lowers employment of natives by 0.02 percent. Hence, the employment effect appears on average to be somewhat greater than the wage effect.

The meta-analysis suggests that elasticities that are computed using geographically narrower definitions of the labour market tend to find much smaller impacts of immigration in magnitude, and that the impact of immigration is larger when estimated for European countries rather than for the US. This is probably related to adjustment processes such as native out-migration, changes in sectoral and trade composition, and capital inflow, which might bias the estimation of the effect of immigration towards zero.

Differently than what found for the impact on wages, immigrants seem to have a larger impact on employment of women than of men, but the impact on employment of earlier immigrants is similar to the impact on employment of natives. The larger impact on women's employment is likely to be related to their different elasticity of labour supply.

The estimation technique does seem to make a difference. Using instrumental variables to correct for the fact that immigrants are more likely to settle in regions with the best labour market opportunities does lead to more negative estimates of the impact of immigration on employment.

Evidence from the previous literature suggests that immigration has only a small negative impact on employment. Because of lower attachment to the labour market, immigration would have a more negative impact on employment of women than of men.

4.4 Meta-Analytic Migration Impact Assessment on Wages and Employment

Next, another study by Longhi et al. (2009) systematically summarises 7 articles published between 1991 and 2006 that report estimates of the impact of immigration on both wages and employment. These 7 articles published 129 estimates of the impact of immigration on wages and 129 comparable estimates of the impact of immigration on employment. Differently than the previous meta-analyses, this study focuses on local/regional impacts of immigration. Besides analysing whether there is consensus in the literature and suggesting possible reasons for apparently inconsistent results, this study also analyses the relationship between the wage and the employment impacts of immigration.

Of the 129 estimates, 78 have been computed for the US, 3 for Portugal, 4 for Germany, 4 for Austria, and 40 for Israel.

This study combines the empirical estimates from the previous literature using meta-analytic techniques. A model of simultaneous equations is estimated, in which the dependent variables are the estimates of the impact of immigration on wages, and the estimates of the impact of immigration on employment; and the explanatory variables are dummies that summarise the main characteristics of the regressions that produced those estimates.

This study confirms that the observed impact of immigration on local wage and employment are very small. Using a weighted average with weights determined by the precision of the estimates, a 1 percentage point increase in the number of immigrants in the local labour market of a typical host country decreases wages of the native born by 0.029 percent and decreases employment of the native born by 0.011 percent. The magnitudes of the elasticities are smaller than those found in the previous meta-analyses that included a larger number of national level estimates. This is not surprising since we would expect localised effects to be smaller than the national effects.

The meta-analysis suggests that less negative estimates of the impact of immigration on wages are associated with more negative estimates of the impact of immigration on employment. While the elasticity of employment seems to respond negatively to a change in the estimated wage elasticity, the wage elasticity seems rather insensitive to changes in the employment elasticity. The causation seems to go from wages to employment, but not vice versa. In an open local labour market the supply of the native born is rather elastic (as they can migrate out) and the wage impact is therefore muted while the magnitude of the effect on employment of the native born would be somewhat larger.

The impact of immigration on wages is less negative in the EU than in the US, but the impact of immigration on employment is larger in the EU. This is consistent with the earlier

meta-analyses and with the general idea that in labour markets with relative rigid wages, adjustments to exogenous shocks may be primarily in terms of employment.

After correcting for the cross elasticity, immigrants seem to have the same impact on men and women, and on natives and earlier immigrants.

When more recent data are used, the estimated impact of immigration seems to be larger. On the one hand, more recent studies, for which better data and econometric techniques are available, might be better able to identify a negative impact of immigration. On the other, it is also possible that the impact of immigration might change over time and might have become larger in more recent years.

Immigration has simultaneous impacts on many aspects of the labour market. This study shows that there seems to be a causal negative relationship going from the impact on wages to the impact on employment: where immigration has a smaller impact on wages it is expected to have a larger impact on employment. This might be indirectly related to institutional systems.

4.5 Meta-Analytic Migration Impact Assessment on a Package of Labour Market Features

Longhi et al. (2008) have produced a study that compares 1,572 estimates of the impact of immigration on different aspects of the labour market, collected from 45 articles published between 1982 and 2007. Of these, 854 are estimates of the impact of immigration on wages; 500 on employment, 185 on unemployment, and 33 on labour force participation. Because of the heterogeneity of the estimates analysed, rather than considering the magnitude of the impact of immigration, this study focuses just on the sign and statistical significance of the estimated impacts.

This study covers a rather large number of countries. Most of the estimates are for the US: 559 on wages; 309 on employment; 10 on unemployment; and 27 on labour force participation. The sample also includes 3 other non European countries: Australia (with 27 estimates on wages and 4 on unemployment); Canada (with 23 estimates on wages; 7 on employment; and 1 on unemployment); and Israel (with 73 estimates on wages and 42 on employment).

European countries include: Portugal (with 5 estimates on wages; 5 on employment; and 5 on unemployment); Spain (with 18 estimates on wages and 55 on employment); France (with 10 estimates on wages and 4 estimates on unemployment); Austria (with 35 estimates on wages and 8 on employment); Germany (with 82 estimates on wages; 20 on employment; and 49 on unemployment); the Netherlands (with 10 estimates on wages); the UK (with 6 estimates on wages; 6 on employment; 92 on unemployment; and 6 on labour force participation); and Norway (with 6 estimates on wages).

Some estimates have been computed for Europe (with 48 estimates on employment and 2 on unemployment), or for the OECD as a whole (with 18 estimates on unemployment).

This study combines empirical estimates of the impact of immigration on wages, employment, unemployment, and labour force participation using meta-analytic techniques.

Because of the heterogeneity of the variable of interest the study estimates an ordered probit model in which the dependent variable identifies the level of statistical significance of the impact of immigration, and the explanatory variables are dummies that summarise the main characteristics of the regressions that produced that estimate. Hence, the study cannot draw any conclusion on the magnitude of the impact of immigration, but can only inform on sign and statistical relevance.

About half of the 1,572 estimates of the impact of immigration are not statistically significant, reconfirming that the impacts on the national and local labour markets are either hard to detect or often very small. Only 26.8 percent of the estimated impacts on wages find a statistically significant negative effect of immigration (at the 5 percent significance level); similarly, only 26.0 percent of the estimated impacts on employment suggest a statistically significant negative impact of immigration.

Statistically significant negative impacts of immigration are relatively more frequent in those studies that use large geographical areas (such as nations), which can be considered less 'open' than regions to various adjustment mechanisms such as trade, internal migration and capital mobility.

Finally, the impact of immigration is generally much more precisely estimated when it focuses on natives (who usually greatly outnumber the immigrants), rather than when it focuses on immigrant groups themselves

This study reconfirms that the impact of immigration is rather small and difficult to detect empirically in such a way that a statistically significant conclusion can be drawn.

4.6 Meta-Analytic Migration Impact Assessment on Income Convergence

Migration has been an important means through which people can improve their economic well-being and quality of life. In general, the net population movement tends to be oriented towards prosperous areas which offer higher real income prospects. Fuelled by migration, the global urban population grew 12.7 times (UNFPA, 2007), while the world population increased with about a factor 4 times in the 20th century (UN, 2009). Despite the mass mobility movements, the number of migration impact studies, is relatively modest. The small literature has varying degrees of evidence on consequences of migration. Though still based on limited research, policy implications of migration are rather interesting.

These discussions prompt the questions of how those that leave, being the newcomers in receiving regions, affect the distribution of income. Many theoretical discussions regard labour mobility as a mechanism that exploits scale economies and may reduce spatial disparities, despite increasing economic concentration. The neoclassical view emphasizes this labour-supply effect of migration, and considers it as an interregional income equilibrating process. Yet many other researchers oppose the standard growth model and point out, for example, the importance of migrants' characteristics, specifically age and skills. Since the 1990s, the economic growth

literature has produced a number of studies that have analysed the role of internal migration on per capita income convergence. Simply in terms of aggregate demand and scale of the economy, regions loosing population through migration may face economic contraction, whereas regions gaining population through migration may benefit from an expansionary effect on output, employment and income. In particular, skill-selective mobility may have profound impacts on origin and destination places, a finding that may be at odds with a neoclassical economic analysis framework. The evidence produced by the current literature regarding the effects of migration is, however, not yet conclusive. Therefore, a meta-analysis of previous findings may be interesting (see Ozgen et al. 2011)

We have searched the literature extensively on this matter. The literature search focused extensively electronic resources of published articles and unpublished studies, as well as websites of migration-related research institutes, and international organizations. More than 1200 articles were scanned. Meta-analysis requires the acquisition of a cluster of studies concerned with the same research question and which use a common econometric specification, suggested by Barro and Sala-i Martin (1992). The selected studies for meta-analysis were all produced after 1991. From the 12 remaining papers, 67 estimates were obtained.

Meta-analytic techniques provide a systematic analysis of the available empirical evidence from independently undertaken studies. Such techniques permit us to identify the relationships between the measured effects of migration and relevant study characteristics such as data source, scientific method, and the choice of geographical boundaries. By means of meta-analysis, it is possible to combine the numerical outcomes from various studies, to estimate the accuracy of relationships, and to explain the inconsistencies between research findings.

This meta-analytic study has analysed the impact of migration on income disparities by applying several meta-analytical techniques. Comparative analysis of relevant applied studies brought to light that in many countries data problems are a common difficulty for the researchers. The available data to some extent drive the research methodology used in the various studies.

As a result of synthesizing the empirical work, we conclude that the overall effect of migration on income convergence is positive but quite modest. We find that a positive sign of net inward migration coincides with faster economic growth. The main conclusion is consistent with New Endogenous Growth theories which consider the different characteristics of labour (in terms of age, skills, education etc.) rather than with the standard neoclassical model which assumes that labour is homogeneous (all immigrants possess identical features). The findings suggest a positive relationship between net migration rate and higher growth rates. Once the characteristics of migrants are considered, in particular high-skilled migrants, the effect of migration on income convergence is strengthened. However, assessing the composition effect of migration remains a subject for more detailed research.

The results indicate a clear point about the importance of controlling for time-specific effects. While examining the effect of migration if one considers the impact of incomers in particular time periods, it is likely to find a higher positive effect of net migration rate (by 0,34) on growth. In other words, in relation to the composition and the scale of the inflow, the effect of migration may reveal different economic outcomes over time. Additionally, the effect of different geographies in explaining the consequences of migration stays unexplained, since in our selected sample of studies only a few considered the relationship between geographical context and patterns of migration. Therefore, in-depth attention is required for a further spatial analysis of migration. Our results are also informative on particular econometric techniques and their use in the economics literature on migration studies. In particular, studies that did not employ panel data estimated a higher effect of migration by 0,23 on average.

The findings imply that the theoretical arguments are relevant to the empirical findings in various countries. At a mean value of about 0.1, an increase in the net migration rate of one percentage point would increase the annual growth rate in real income per capita by 0.1 per cent. The insights from the economic studies exert a necessity for policy makers to rethink about the policy implications of migration. The perceived impact and the mainstream views on the expected negative consequences of migration are not sustained by the empirical findings in the literature.

4.7 Immigration, Ethnic Diversity and Spatial Innovation Patterns in Europe

When Nobel prize winner Lucas emphasized in the early 1990s the importance of the knowledge that migrants possess, this led to a new vision for receiving countries in the way they perceived migration phenomena. Since the 1990s the literature has produced a vast number of works on the impact of migration and migrants' backgrounds. This rising interest is not only a result of the increasing number of migrants all over the world, but also an effect of changing migration patterns and migrant characteristics. The standard assumption of this new vision is that higher diversity can lead to more innovation and creativity by increasing the number of ways groups frame problems, thus producing a richer set of alternative solutions and consequently better solutions and innovativeness. From this perspective, the aim of this study is to discuss the role of diverse immigrant communities on the innovativeness of their host regions. Clearly, migration may mean an added value to diverse societies and create favourable effects on economic outcomes; although formation of diversity and cultural coherence is a matter of time and interactions in/between particular places. Hence, to measure the impact of cultural diversity on the economy we should be able to measure a multi-layered structure diversity. In essence, ethnic, linguistic, religious and personal perceptions of belonging should be taken into account. To measure such effects, we are unfortunately constrained by the data availability. At the European level, comparable regional data in relation to the cultural background of the residents is only available on the basis of population censuses in 1991 and in 2001.

In a recent study by Ozgen et al. (2011) the focus is on measuring three different effects of migration on patents as an economic intellectual outcome; these are the size effect, the composition effect and the skill effect of immigrants in host regions. The share of immigrants in the total population variable aims to capture the size effect of immigrants on patents applications. The citizenship by country variable accounts for the stock of skills carried by immigrants in a region, and their effect on patent applications. The diversity index aims to measure the composition effect of immigrants on the productivity of the host regions.

There have been various studies focusing on the impact of immigrants on wages of the natives, whereas the impact of 'groups of immigrants' forming/contributing to the varying level of cultural diversity at destinations received modest attention. The total number of studies that focuses on the effect of culturally diverse groups on specifically innovativeness is not more than 20, while most of these studies are conducted in the developed world, mainly in the US, Germany and New Zealand. The effects of diverse backgrounds of immigrants, their productivity effects and the effect of their skills acquired within the culture they are grown up from the central research interest in this study.

The research uses a panel data methodology which allows for variation in time and across the regions. All the models predicted in this study employ panel data estimations using a random effects model with AR1 disturbances. The study applied a panel regression model where the changes in dependent variable, that is patent applications per million inhabitants and its various sub-classifications in regions, is explained by the changes in the share of foreign population in regions. Moreover, the study also looks into the same relationship by varying the major explanatory variable by taking the changes in the overall composition of foreigners according to their diverse backgrounds, and in the skills of foreigners identified by continents into account. The overall diversity effect is measured through the Simpson diversity index, which allows us to combine various groups proportionally. The study used data of an 10 year period, from 1991 to 2001, where the Census data from Eurostat have been utilized for 170 NUTS 2 level regions in 12 of EU15 countries. To assess the effect of accessibility of the regions on patents application the study employed an accessibility index kindly provided by ESPON.

The destinations that were attractive to immigrants in the beginning of the research period, 1991, were attractive in 2001 too. The share of immigrants in both 1991 and 2001 indicates a linear relationship with the high per capita GDP areas. In the last 10 years following 1991, the share of immigrants is the highest in the regions where average population is 500 000 and above. Within the foreign population by broader groups of citizenship, the Europeans who live in Europe other than parent countries constitute the highest share.

The results are informative on three issues focusing on the consequences of migration and the effect of immigrants. The first bloc of results concentrates on the density effect of immigration. The study found that a 1% increase in the share of foreigners increases the patent applications by 0.23%. The positive effect of immigrants on the innovativeness of the regions is

statistically significant at a 5% level. Similarly, a 1% increase in GDP per capita leads to a 1% increase in patent applications. Average population size is a commonly used proxy for measuring the agglomeration, demand and consumption potential of the regions. Our findings show that a population increase by 1% creates a 0.30% raise in patent applications at 1% level. Expectedly, the manufacturing sector value has a positive and statistically significant effect on patent applications at a 1% level. The study could not find a significant effect of human resources in science and technology, although the coefficient indicates a positive relationship. All Mediterranean countries and almost all northern European countries that are in our sample have produced fewer patent applications than the Netherlands.

The second part of the results determines how immigrants from different nationalities contribute to the innovative capacity of the European regions. This step in the research imposed the same model as used above, but with a disaggregation of the immigrants by their nationalities. Almost all explanatory variables appear to be significant at a 1% level. The positive contribution of the Americans and the negative effect of Asians on patent applications are statistically significant at 5%, although the effects are fairly low. Europeans have a positive effect on patent applications, but the effect is not significant. Africans have a negative coefficient, yet the effect is inconclusive.

The final part of the statistical predictions measures the effect of diverse groups of population as a whole. In other words, the diversity index, that is a composite measure of various immigrant groups, informs us about the externalities gained in a culturally heterogeneous society. The measure of diversity in the 12 European countries has a statistically significant effect on the patents applications. A unit increase of the diversity index increases patents applications by 2.2%. The study also controls for time and country effects to capture the variation in political processes in various countries, and to deal with complex econometric issues.

5. Relevance and Policy Conclusions

Migration Impact Assessment (MIA) is becoming a rapidly evolving research area in economics (see Hodgson and Poot 2011, and Nijkamp et al. 2012). It covers nowadays a wide range of topics and policy interests, such as:

- migrant integration and adjustment in the labour market (including demographic changes, labour force participation and integration, return and out-migration, skills composition and educational level of migrants, settlement location and geographic mobility, and remittances to country of origin);
- labour market impacts (such as differences between natives and foreign migrants, crowding-out effects);
- housing market impacts (including housing tenure and demand, subsidy schemes for low income cohorts, housing price effects at local or regional level);

- foreign trade, investments and tourism effects (including the impact of bonds to country of origin on imports and exports of goods and devices, visits to friends and relatives (VFR-tourism and ‘diaspora’-interactions));
- fiscal impacts (such as the influence of duration of residence on net fiscal revenues, the effect of country of origin and profession on public finance);
- innovation impacts (for instance, the effects of economies of scale, skill levels of migrants and admission policies, the effect of a greater cultural diversity on the host country (‘melting pot’ phenomenon));
- new (migrant or ethnic) entrepreneurship (in particular, the contribution to a booming SME sector, the consequences for urban vitality, the enrichment of the spectrum of consumer goods through ethnic products, the impact of business models – such as financing channels – used).

Various empirical and meta-analytic MIA studies have clearly demonstrated that the fear that generally a large influx of migrants might have a devastating effect on local or regional labour markets of the host country is not confirmed by empirical facts. In most cases, these effects are negligible to marginal. Further evidence suggests that, if there are crowding-out and competition effects on local labour markets, such phenomena take place among distinct classes of migrants rather than between migrant and natives. Income effects of migration tend in general to be significantly positive. Two additional observations have to be made here. First, most meta-analytic studies undertaken do not consider the long-range positive effects on the competitiveness of a region, through which creativity, innovativeness and entrepreneurship – and hence growth – is stimulated. This will undoubtedly have a positive effect on the regional economy, as is shown from evidence from a comparative study. Secondly, apart from effects on regional or local labour markets, there may also be substantial positive effects from migrant (or ethnic) entrepreneurship. In conclusion, it seems plausible that that in a globalizing economic system, MIA will continue to be an important framework for mapping out the multi-dimensional consequences of foreign migration.

References

- Barrell, R., J. FitzGerald, and R. Riley (2007) EU Enlargement and Migration: Assessing the Macro-economic Impacts, NIESR Discussion Paper no. 292, London: National Institute for Economic and Social Research, London.
- Barro, R.J. and X. Sala-i Martin (1992) Regional Growth and Migration: A Japan-United States Comparison. *Journal of the Japanese and International Economies* 6: 312-346.
- Cavounidis, J. (2002) Migration in Southern Europe and the Case of Greece. *International Migration*, 40(1): 45-70.
- CCSCE (2005) The impact of Immigration on the California Economy, Los Angeles: CCSCE.
- Department of Immigration and Multicultural Affairs (2006) The Economic Impacts of Migration: A Comparison of Two Approaches, Econtech, Kingston/Sydney, Australia: Econtech.
- Dustmann, C., T. Frattini and C. Halls (2009) Assessing the Fiscal Costs and Benefits of A8 Migration to the UK, Discussion Paper 18/9, London: Centre for Research and Analysis of Migration (CReAM).
- Florax, R.G.J.M., P. Nijkamp and K.G. Willis (eds.) (2002) *Comparative Environmental Economic Assessment*, Cheltenham: Edward Elgar.
- Fritschi, T. and B. Jann (2007) Gesellschaftliche Kosten unzureichender Integration von Zuwanderinnen und Zuwanderern in Deutschland, Güterloh: Bertelsmann Stiftung.
- Greenwood, M.J. and J. M. McDowell (1986) The Factor Market Consequences of US Immigration, *Journal of Economic Literature* 24: 1738-1772.
- Hodgson, R., and J. Poot (2011), New Zealand Research on the Economic Impacts of Immigration 2005-2010: Synthesis and Research Agenda Discussion Paper CDP 04/11, CROAM, UCL, London.
- House of Lords (2008) Select Committee on Economic Affairs, The Economic Impact of Immigration, Volume I: Report, London: The Stationery Office Ltd.
- IOM (2000) *World Migration Report*. International Organization for Migration, Geneva.
- IPPR (2007) Britain's Immigrants; An Economic Profile, London: Institute for Public Policy Research
- IPPR (2009) The Economic Impacts of Migration on the UK Labour Market, London: Institute for Public Policy Research.
- Lazaridis, G. and J. Poyago-Theotoky (1999) Undocumented Migrants in Greece: Issues of Regularization. *International Migration*, 37(4): 715-740.
- Lemos, S., and J. Portes (2008) The Impact of Migration from the New European Union Members States on Native Workers, Leicester: Economics Department, University of Leicester.
- Longhi, S., P. Nijkamp and J. Poot (2005) The Fallacy of "Job Robbing": A Meta-Analysis of Estimates of the Effect of Immigration on Employment, *Journal of Migration and Refugee Issues* 1(4): 131-152
- Longhi, S., P. Nijkamp and J. Poot (2008) The Impact of Immigration on the Employment of Natives in Regional Labour Markets: A Meta-Analysis, *Migration and Human Capital* (J. Poot, B. Waldorf and L. van Wissen, eds.), Cheltenham: Edward Elgar: 173-193.
- Longhi, S., P. Nijkamp and J. Poot (2009) Spatial Impacts of Immigration on Wages and Employment (submitted to *Journal of Geographical Systems*).
- Malchow-Moller, N., J.R. Munck, and J.R. Skaksen (2009) Do Immigrants Take the Jobs of Native Workers?, Paper IZA DP No. 4111, Bonn: Institute for the Study of Labor.

- Münz, R., T. Straubhaar, F. Vadean and N. Vadean (2006) The Costs and Benefits of European Immigration, WWI Policy Report 3, Hamburg: Hamburgisches Weltwirtschaftliches Institut.
- Nijkamp, P. (2009) E Pluribus Unum, *Region Direct*, 2(2): 56-65.
- Nijkamp, P., J. Poot, and M. Sahin (eds.) (2012), *Migration Impact Assessment: New Horizons*, Edward Elgar, Cheltenham (forthcoming)
- Ozgen, C., P. Nijkamp and J. Poot (2011) The Effect of Migration on Income Convergence: Meta-Analytic Evidence, *Papers in Regional Science* (forthcoming).
- Pekkala Kerr, S., and W.R. Kerr (2008) Economic Impacts of Immigration: A. Survey, HBS Working Paper 09-013, Cambridge MA: Harvard Business School, Cambridge.
- Roodenburg, H., R. Euwals and H. ter Pelle (2003) Immigration and the Dutch Economy, The Hague: CPB.
- Stalker, P. (2002) Migration Trends and Migration Policy in Europe. *International Migration* 40(5): 151-179.
- Suedekum, J., K. Wolf, and U. Blien (2008) The Effects of Cultural Diversity on Regional Labour Markets in Germany, Duisburg: Mercator School of Management, University of Duisburg-Essen.
- UN (2009) *World Population Prospects: The 2008 Revision*, New York: Department of Economic and Social Affairs Population Division, ESA/P/WP.210.
- UNFPA (2007) State of World Population, online report at: http://www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf
- Zimmermann, K.F. (2005) European Labour Mobility: Challenges and Potentials. *De Economist*, 153(4): 425-450.

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